College Algebra Math 1050, SUMMER 2019

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Office Hours: Tuesday and Wednesday 2-3 PM

Course Goal: Improve quantitative reasoning and prepare for future mathematics courses such as: calculus, linear algebra, and discrete mathematics.

Course Information: Math 1050 is a 4-credit semester course. According to university guidelines, during the Fall-Spring semester, an average student should expect to spend 8-12 hours per week working on this class in addition to the lecture time. During the accelerated summer semester, you should expect to spend 16-20 hours outside of lecture time.

Prerequisite Information: The prerequisite for this course is at least a C (preferably a B) in mathematics 1010 or its equivalent or an ACT score of at least 23.

Course structure: We will have a "flipped classroom" environment. You will be expected to watch lecture videos outside of class and take notes while watching. During class, we will work on problems together (in groups). These problems will be the odd-numbered exercises from the textbook.

Topics to be covered: Numbers, functions, sequences, series, counting problems, graphs of functions, inverse functions, polynomials, rational functions, n-th roots, exponential functions, logarithms, piecewise defined functions, matrices, and matrix equations.

Expected Learning Outcome:

1. Sketch the graph of basic polynomials (second and third order), rational, radical, exponential, logarithmic, and piecewise functions with or without transformations. Be able to identify important points such as x and y intercepts, maximum or minimum values; domain and range; and any symmetry.

2. For rational functions, identify x and y intercepts, vertical, horizontal and oblique asymptotes (end behavior), and domain. Use information to sketch graphs of functions.

3. For polynomial functions identify all zeros (real and complex), factors, x and y intercepts, end behavior and where the function is positive or negative. Use information to sketch graphs.

4. Understand the relationships between graphic, algebraic, and verbal descriptions of functions.

5. Given the graph of a function, be able to identify the domain, range, any asymptotes and/or symmetry, x and y intercepts, as well as find a rule for the function if it is obtained from a standard function through transformations.

6. Define i as the square root of -1 and know the complex arithmetic necessary for solving quadratic equations with complex roots.

7. Solve absolute value, linear, polynomial, rational, radical, exponential and logarithmic equations and inequalities.

8. Find the inverse of a function algebraically and graphically.

9. Perform composition of functions and operations on functions.

10. Understand sequences and be able to differentiate between geometric, arithmetic and others such as Fibonacci-type sequences, giving direct formulas where available or a numeric representation.

11. Understand series notation and know how to compute sums of finite arithmetic and finite and infinite geometric series.

12. Solve systems of equations (3 x 3 linear) and non-linear equations in two variables.

13. Make sense of algebraic expressions and explain relationship among algebraic quantities including quadratic, exponential, logarithmic, rational, radical, and polynomial expressions, equations and functions.

14. Represent and interpret "real world" situations using quadratic, exponential, logarithmic, rational, radical, and polynomial expressions, equations, and functions.

Text: The text is available on the course canvas page. You may print or download any portion you would like, or may view it entirely online. Homework is also entirely available on the course Canvas page.

Calculators: Calculators will be useful for homework, but will not be permitted on exams.

Homework: Homework consists of two components:
- Written homework from the textbook, collected twice a week (Monday and Wednesday).
- Watching 1050 lecture videos and filling out pre-notes for each video. You will be expected to upload a photo or a scanned copy of these notes on CIS before the start of each lecture. There will be 27 total videos.

Late homework will not be accepted. Please note, homework is a substantial part of your grade for the course (20%), it is to your benefit to do all your homework—partial credit is better than no credit.

Quizzes: There will be 10 quizzes total during the semester. These quizzes will be done in groups. Quizzes are every Tuesday and Thursday. **You must be in attendance to take a quiz.** In order accommodate conflicts in schedules that may keep students from attending class on a quiz day, the three lowest quiz scores will be dropped.

Attendance: Attendance is not "mandatory." However, concepts will be thoroughly explained and reviewed in class; it is to your benefit to attend *all* classes. It is also to the benefit of your classmates to attend all classes, due to the collaborative environment of this course.

Very Important dates:
   Classes will meet every Monday, Tuesday, Wednesday, and Thursday with the exception of the following days:

   There will be no class:
   Monday, May 27 (Memorial Day)

   MIDTERMS: Wednesday, May 29
   Wednesday, June 12

   FINAL: Wednesday, June 19 in class

There are no "make-up" exams or quizzes. Students who miss an exam or quiz will receive a "0" on the missed exam.

Other noteworthy dates:
Last day to add, drop, elect CR/NC, audit, or wait list: Thursday, May 16
Last day to withdraw Friday, May 31
Last day of class Wednesday, June 19

Grades: Numerical semester scores will be determined using the following formula: 20% written homework, 10% quizzes, 20% **each** midterm exam, 30% final exam. *The three lowest quiz scores will be dropped*.

Semester letter grades are as follows:

A [93, 100]   CC [73, 77)
A- [90, 93)   CC- [70, 73)
B+ [87, 90)   DD+ [67, 70)
B [83, 87)   DD [63, 67)
B- [80, 83)   DD- [60, 63)
C+ [77, 80)   EE [0, 60)

I will not consider any special requests for grade adjustments at the end of the semester, such as rounding up or additional work to improve your grade. If you are concerned about your grade, please talk to me **before** the final exam. I am happy to help you with that.

IMPORTANT RESOURCES:

Mathematics Tutoring Center: Drop in, sit down, and if you have a question, someone will come by who can help you. There are also study areas free of tutors, a computer lab, group study rooms available through reservations, and group tutoring sessions that can be arranged to meet at a regular time. Located on 1st Floor of JWB or LCB. Open 8am-8pm MTWH; 8am-6pm F.

Math Department Video Lectures: Video lectures are available at: http://www.math.utah.edu/lectures/math1050New.html

ADA Statement: The University of Utah seeks to provide equal access to its programs,services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services,162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability Services.